

Establishing hydrological extreme conditions in Argentina

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Summary

The occurrence of extreme hydrological events of varying intensity over time results in significant economic losses in agricultural activities and the environmental consequences they cause such as soil erosion, floods, forest fires and biodiversity losses. This paper presents the space-time dynamics of extreme water events that recur in Argentina, identified, evaluated and predicted using the Palmer drought severity indices (PDSI) and the standardized precipitation index (SPI). In the calculation of the PDSI and SPI, historical series of daily precipitation of stations distributed throughout the national territory belonging to the National Meteorological Service (SMN) were used, as well as data on monthly evapotranspiration and soil water capacity. The objective of this work was to establish a methodology to identify and evaluate the water extremes using the Palmer Drought Severity Index (PDSI) and the Standardized Precipitation Index (SPI) for three and twelve months. The results obtained indicate the possibility of using the values obtained for early warning and developing mitigation measures.

Key words: Drought; flooding; PDSI; SPI; early warning